Associations of deprivation with musculoskeletal, cardiovascular, respiratory diseases and disabilities

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Research question

Multiple deprivation (D) affects many people and is associated with deteriorated living conditions, lifestyle, and health status. Most studies have been conducted using neighbourhood deprivation index (Messer et al., 2006) while deprivation can concern individuals in various geographical areas. To our knowledge the prevalence of deprivation and its consequences on various diseases and disabilities have been little documented, especially in France.

The present study assessed the relationships of multiple deprivation with cardiovascular diseases, respiratory diseases, musculoskeletal disorders, physical disabilities, vision-hearing disabilities, and cognitive disabilities

Design and methods

The sample included 6,216 subjects, aged ≥15 years, randomly selected in north-eastern France. The subjects completed a postmailed questionnaire including individual characteristics, various diseases diagnosed by the physician, and reported disabilities (according to the WHO classification).

The multiple deprivation D was defined by the cumulative number of the following 7 criteria (mostly used in the literature, Messer et al., 2006): low educational level, manual worker, unemployment, living alone, nationality other than Western Europe, low income, and non-home-ownership

Data were analysed using adjusted odds ratios (ORa) computed with logistic models.

Results

The multiple deprivation D concerned many people:

- D1 37.4%,
- D2 21.2%,
- D≥3 10.0%.

The prevalence of cardiovascular diseases was 19.8%, respiratory diseases 9.4%, musculoskeletal disorders 50.4%, physical disabilities 27.7%, vision-hearing disabilities 27.4%, and cognitive disabilities 34.4%.

There was a strong relationship of the D with cardiovascular diseases, respiratory diseases, musculoskeletal disorders, physical disabilities as well as with vision-hearing disabilities and cognitive disabilities (Table 1).

Table 1. Exposure-response relationship of D to diseases and disabilities: ORa adjusted for age and sex, vs. D=0, and 95% CI (n=6,216)

	D=1	D=2	D≥3
Cardiovascular diseases	1.2 (1.0-1.4)	1.2 (1.0-1.5)	1.4 (1.1-1.8)
Respiratory diseases	1.3 (1.0-1.6)	1.5 (1.2-2.0)	2.2 (1.6-2.9)
Musculoskeletal disorders	1.1 (1.0-1.3)	1.4 (1.2-1.6)	1.7 (1.4-2.0)
Physical disabilities	1.5 (1.1-1.9)	1.8 (1.3-2.0)	2.8 (2.1-3.9)
Vision-hearing disabilities	1.3 (1.1-1.5)	1.5 (1.3-1.8)	1.5 (1.2-1.8)
Cognitive disabilities	1.3 (1.2-1.6)	1.8 (1.5-2.1)	2.6 (2.2-3.2)

The associations of the D with cardiovascular diseases, respiratory diseases, musculoskeletal disorders, physical disabilities, vision-hearing disabilities, and cognitive disabilities were strong in working and other non-retired people. In retired people, significant relationships were also observed except for cardiovascular diseases and musculoskeletal disorders (relationships close to significance) (Table 2).

Table 2. Exposure-response relationship of D to diseases and disabilities: ORa adjusted for age and sex, vs. D=0, and 95% CI (n=6,216)

	D=1	D=2	D≥3
Working and non-retired people (n=4,664)			
Cardiovascular diseases	1.2 (0.9-1.5)	1.2 (0.9-1.6)	1.6 (1.2-2.2)
Respiratory diseases	1.4 (1.0-1.8)	1.6 (1.1-2.2)	2.1 (1.2-3.1)
Musculoskeletal disorders	1.2 (1.0-1.4)	1.3 (1.1-1.6)	1.7 (1.4-2.2)
Physical disabilities	1.7 (1.1-2.5)	2.4 (1.6-3.6)	3.8 (2.4-6.0)
Vision-hearing disabilities	1.3 (1.1-1.5)	1.5 (1.2-1.9)	1.7 (1.3-2.3)
Cognitive disabilities	1.4 (1.2-1.6)	1.9 (1.6-2.3)	3.0 (2.4-3.8)
Retired people (n=1,552)			
Cardiovascular diseases	1.2 (0.9-1.6)	1.3 (0.9-1.7)	1.2 (0.9-1.8)
Respiratory diseases	1.2 (0.8-1.7)	1.6 (1.0-2.3)	2.4 (1.5-3.8)
Musculoskeletal disorders	0.9 (0.7-1.2)	1.3 (0.9-1.7)	1.3 (0.9-1.9)
Physical disabilities	1.3 (0.9-1.9)	1.4 (0.9-2.1)	2.3 (1.5-3.6)
Vision-hearing disabilities	1.3 (1.0-1.7)	1.5 (1.2-2.1)	1.2 (0.8-1.7)
Cognitive disabilities	1.3 (1.0-1.7)	1.5 (1.1-2.0)	2.0 (1.4-2.8)

Conclusions

Multiple deprivation is associated with altered health status and here with cardiovascular diseases, respiratory diseases, musculoskeletal disorders, physical disabilities, vision-hearing disabilities, and cognitive disabilities.

The psychologists and physicians may help the subjects affected to improve their health, living conditions and lifestyle, to be more aware of the risks, and to find remedial measures.

Reference

Messer LC, Laraia BA, Kaufman JS, Eyster J, Holzman C, Culhane J, Elo I, Burke JG, O'Campo P. The development of a standardized neighbourhood deprivation index. J Urban Health 2006;83:1041-62.

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